

CLAIMS

Sub 1/1
1. A rolling bearing comprising at least an outer ring
having an outer ring raceway, an inner ring having an inner
5 ring raceway, and rolling elements rotatably disposed
between the outer ring raceway and the inner ring raceway,
and selectively having a cage for evenly distributing the
rolling elements in the rotational direction of the rolling
elements between the outer ring raceway and the inner ring
10 raceway, and used under lubrication with a lubricating oil
or a grease containing a fluoro-containing polymer, or in an
atmosphere containing a gas comprising fluorides, wherein
the bearing comprises full complement angular ball bearing
with a contact angle being 10° or more and 45° or less.

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Sub 1/2
2. The rolling bearing as defined in claim 1, wherein the
contact angle is 15° or more to 30° or less.

3. The rolling bearing as defined in claim 1 or 2,
20 wherein the surface roughness of the outer ring and the
inner ring is $0.05 \mu\text{m Ra}$ and less or the ratio of the
surface roughness of the outer ring or the inner ring
relative to the surface roughness of the rolling element is
6 or less.

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Sub
a2

4. The rolling bearing as defined in any one of claims 1 to 3, wherein at least the rolling element is formed of an alloy steel with a Cr content of 7% by weight or more and 27% by weight or less, and fine carbides are uniformly
5 dispersed on the surface.

5. The rolling bearing as defined in any one of claims 1 to 4, wherein at least the rolling element comprises oxide ceramics or has a dense nitride layer on the surface of the
10 rolling element, and the surface roughness of the rolling element is 0.005 μm Ra or less and the surface hardness is Hv 900 or more.

Sub B2 6. The rolling bearing as defined in claim 1 or 2,
15 wherein obstacles with a mean diameter in excess of 3 μm are not present at least on the raceway surface of the outer ring and the inner ring.

7. The rolling bearing as defined in claim 1 or 2,
20 wherein a layer of a hardness higher than that of the raceway surface of the outer ring and the inner ring is coated at least to the surface of the rolling element.

8. A rolling bearing comprising an outer ring having an
25 outer ring raceway, an inner ring having an outer ring

raceway, and rolling elements rotatably disposed between the
outer ring raceway and the inner ring raceway, and
selectively having a cage for evenly distributing the
rolling elements in the rotational direction of the rolling
5 elements between the outer ring raceway and the inner ring
raceway, and used under lubrication with a lubricating oil
or a grease containing a fluoro-containing polymer or in an
atmosphere containing a gas comprising fluorides, wherein

the cage is formed with an advanced resin material
10 into a circular shape, a plurality of pockets each
containing the rolling element through an opening and
rotatably holding the same are disposed at a predetermined
distance in the circumferential direction, the size for the
opening of a pocket having a weld line has a value of 93% or
15 more for the diameter of the rolling element, and the size
for the opening of at least two other pockets is 80% or more
and 93% or less for the diameter of the rolling element.

9. A rolling bearing comprising an outer ring having an
20 outer ring raceway, an inner ring having an outer ring
raceway, and rolling elements rotatably disposed between the
outer ring raceway and the inner ring raceway, and
selectively having a cage for evenly distributing the
rolling elements in the rotational direction of the rolling
25 elements between the outer ring raceway and the inner ring

raceway, and used under lubrication with a lubricating oil or a grease containing a fluoro-containing polymer or in an atmosphere containing a gas comprising fluorides, wherein

the cage is constituted with a PTFE resin material or
5 a PPS resin material and/or constituted by applying chamfering to inner and outer diametrical sides of the pocket and forming a through hole in the bottom of the pocket.

10 10. A rolling bearing comprising an outer ring having an outer ring raceway, an inner ring having an outer ring raceway and rolling elements rotatably disposed between the outer ring raceway, and the inner ring raceway, and selectively having a cage for evenly distributing the
15 rolling elements in the rotational direction of the rolling elements between the outer ring raceway and the inner ring raceway, and used under lubrication with a lubricating oil or a grease containing a fluoro-containing polymer or in an atmosphere containing a gas comprising fluorides, wherein
20 the cage is formed with an advanced resin material into a circular shape, and a plurality of pockets each containing the rolling element through an opening and rotatably holding the same are disposed at a predetermined distance in the circumferential direction, the size for the
25 opening of the pocket having a weld line has a value of 93%

or more for the diameter of the rolling element, and the
size for the opening of at least two other pockets is 80% or
more and 93% or less for the diameter of the rolling element
and the cage is constituted with a PTFE resin material or a
5 PPS resin material and/or constituted by applying chamfering
inner and outer diametrical sides of the pockets and forming
a through hole in the bottom of the pocket.

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